(6 p	ages) I	Reg. No. :		When both partners are affected negatively the nature of interaction is				
Co	de No. : 30418 E	Sub. Code: AMMI 51		(a)	Commensalism	(b)	Competition .	
	B Sc (CRCS) DECR	EE EXAMINATION,		(c)	Predation	(d)	Amensalism	
NOVEMBER 2022. Fifth Semester Microbiology – Core			4.	My	corrhiza represent	s	ii h	
			(a)	Symbiotic associa	ation be	tween a fungu	s and	
				liverworts				
	AGRICULTURAL	MICROBIOLOGY		(b)	Parasitic associat	ion betv	veen a fungus a	nd an
(For those who joined in July 2020 onwards)		# 1	(c) Symbiotic association between a fungus and					
Time: Three hours Maximum: 75 marks			roots of higher plants					
	DAPT 4 (10	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		(d)	Parasitic association roots of plants	tion be	tween a fungu	s and
		× 1 = 10 marks)	5.	137L	*	t	16 . 20	~ .
Answer ALL quest Choose the correct answer :			0.	Which of the following is aerob bacterium?		obic nitrogen –	lixing	
1.	Most of the soil organi			(a)	Azotobacter	(b)	Clostridium	
**	(a) Psycrophiles	sm is ———. (b) Mesophiles		(c)	Rhodospirillium	(d)	Rhodospseudon	nonas
	(c) Thermophiles	(d) All of the above	6.	Wh atn	ich of the follo	owing 1	bacteria canno	ot fix
2.	The red colour of soil i		j.,	(a)	Nostoc	. (b)	Anabena	
	(a) Hematite (c) Glavconite	(b) Goethite (d) Maghemite		(c)	Oscillatoria	(d)	Lactobacillus	
	,	(a) Magnemite			n.	0 (7. I. M	(4 c T
			10 15		Pa	ge 2 (Code No. : 304	118 E
				,				
								Ų
7.	Biofertilizer —				PART B — (5 >	× 5 = 25	marks)	
7.	(a) Kill pests	(b) Prevent pest growth		Answ Ea	PART B — (5 x er ALL questions, ach answer should	choosin	g either (a) or (t	o).
7.	(a) Kill pests	(b) Prevent pest growth (d) All of the above		Ea	er ALL questions, ach answer should	choosin not exce	g either (a) or (teed 250 words.	o).
7. 8.	(a) Kill pests(c) Retain soil fertility			Ea	er ALL questions, ach answer should Explain the chemi	choosin not exce	g either (a) or (teed 250 words.	o).
	(a) Kill pests(c) Retain soil fertility	v (d) All of the above utterfly caterpillars.		Ea (a)	er ALL questions, ch answer should Explain the chemi (Write about the	choosin not exce ical prop Or factors	g either (a) or (bed 250 words. perties of soil.	
	(a) Kill pests (c) Retain soil fertility ————————————————————————————————————	v (d) All of the above utterfly caterpillars.		Ea (a)	er ALL questions, ach answer should Explain the chemi	choosin not exce ical prop Or factors	g either (a) or (bed 250 words. perties of soil.	
	(a) Kill pests (c) Retain soil fertility ————————————————————————————————————	v (d) All of the above utterfly caterpillars.		Ea (a) (b)	er ALL questions, ich answer should Explain the chemical Write about the microbial population.	choosin not exce ical prop Or factors ion.	g either (a) or (bed 250 words. Derties of soil.	g soil
	 (a) Kill pests (c) Retain soil fertility ———— control b (a) Bacillus thuringin (b) Lactobacillus (c) Acetobacter aceti 	v (d) All of the above utterfly caterpillars.	11.	Ea (a) (b)	er ALL questions, ich answer should Explain the chemical Write about the microbial population.	choosin not exce ical prop Or factors ion.	g either (a) or (bed 250 words. Derties of soil.	g soil
8.	 (a) Kill pests (c) Retain soil fertility ————————————————————————————————————	y (d) All of the above utterfly caterpillars.	11.	(a) (b) (a)	er ALL questions, ich answer should a Explain the chemical write about the microbial population.	choosin not exce ical prop Or factors ion. tween	g either (a) or (bed 250 words. perties of soil. that influencin commensalisms	g soil and
	 (a) Kill pests (c) Retain soil fertility ————————————————————————————————————	y (d) All of the above utterfly caterpillars. esis by a species of	11.	(a) (b) (a)	er ALL questions, ich answer should be a sout the microbial populate. Differentiate bet predation. Give a brief of Mention the role	choosin not exce ical prop Or factors ion. tween Or	g either (a) or (bed 250 words. perties of soil. that influencin commensalisms	g soil and
8.	 (a) Kill pests (c) Retain soil fertility ————————————————————————————————————	y (d) All of the above utterfly caterpillars.	11.	(a) (b) (a)	er ALL questions, ich answer should answer should be the microbial populate. Differentiate bethe predation. Give a brief of Mention the role in rhizosphere.	choosin not exce ical prop or factors ion. tween or descript of micr	g either (a) or (bed 250 words. perties of soil. that influencin commensalisms ion of rhizospo organisms inv	g soil and ohere.
8. 9.	 (a) Kill pests (c) Retain soil fertility ————————————————————————————————————	y (d) All of the above utterfly caterpillars. esis by a species of (b) Uncinula (d) Claviceps	11.	(a) (b) (a)	er ALL questions, ich answer should Explain the chemical write about the microbial populate. Differentiate bet predation. Give a brief of Mention the role in rhizosphere. Distinguish bet symbiotic nitroge	choosin not exce ical prop or factors ion. tween or descript of micr	g either (a) or (bed 250 words. perties of soil. that influencin commensalisms ion of rhizospo organisms investigation	g soil and
8.	(a) Kill pests (c) Retain soil fertility ——control b (a) Bacillus thuringin (b) Lactobacillus (c) Acetobacter aceti (d) None of the above Ergot of rye is caused b (a) Phytophthora (c) Ustilago Black stem rust of whe	y (d) All of the above utterfly caterpillars. esis by a species of (b) Uncinula (d) Claviceps	11.	(a) (b) (a) (a) .	er ALL questions, ich answer should Explain the chemical write about the microbial populate. Differentiate bet predation. Give a brief of Mention the role in rhizosphere. Distinguish bet symbiotic nitroge	choosin not exce ical prop or factors ion. tween Or descript of micr ween n fixatio	g either (a) or (bed 250 words. Derties of soil. that influencin commensalisms ion of rhizosp o organisms inv symbiotic and on.	g soil and ohere.
8. 9.	(a) Kill pests (c) Retain soil fertility ————————————————————————————————————	y (d) All of the above utterfly caterpillars. esis by a species of (b) Uncinula (d) Claviceps	11.	(a) (b) (a) (a) (b)	er ALL questions, ich answer should answer should be a supported by the microbial populate. Differentiate between a brief of Mention the role in rhizosphere. Distinguish between symbiotic nitroger. Write about nitro	choosin not exce ical prop or factors ion. tween Or descript of micr ween n fixatio Or gen fixe	g either (a) or (bed 250 words. Derties of soil. that influencing commensalisms ion of rhizosy o organisms investigation.	g soil and ohere. volved non
8. 9.	(a) Kill pests (c) Retain soil fertility ——control b (a) Bacillus thuringin (b) Lactobacillus (c) Acetobacter aceti (d) None of the above Ergot of rye is caused b (a) Phytophthora (c) Ustilago Black stem rust of whe	y (d) All of the above utterfly caterpillars. esis by a species of (b) Uncinula (d) Claviceps	11. 12.	(a) (b) (a) (a) (b)	er ALL questions, ich answer should answer should be a supported by the microbial populate. Differentiate bet predation. Give a brief of Mention the role in rhizosphere. Distinguish bet symbiotic nitroge. Write about nitroge.	choosin not exce ical prop or factors ion. tween Or descript of micr ween n fixatio Or gen fixe e on lice	g either (a) or (bed 250 words. Derties of soil. that influencing commensalisms ion of rhizosy o organisms investigation.	g soil and ohere. volved non
8. 9.	(a) Kill pests (c) Retain soil fertility ————————————————————————————————————	y (d) All of the above utterfly caterpillars. esis by a species of (b) Uncinula (d) Claviceps eat is caused by?	11. 12.	(a) (b) (a) (a) (b) (a)	er ALL questions, ich answer should answer should be a supported by the microbial populate. Differentiate bet predation. Give a brief of Mention the role in rhizosphere. Distinguish bet symbiotic nitroge. Write about nitroge.	choosin not exceed ical property of factors ion. tween of microween in fixation or gen fixed e on lice. Or	g either (a) or (bed 250 words. perties of soil. that influencin commensalisms ion of rhizospo organisms investigation. rs. quid biofertilize	g soil and phere. volved non

Code No.: 30418 E

Page 4 Code No.: 30418 E

granulosis virus.

 (a) Describe the symptoms associated with microbial plant diseases.

Or

(b) Give an account on citrus canker.

PART C — $(5 \times 8 = 40 \text{ marks})$

Answer ALL questions, choosing either (a) or (b) Each answer should not exceed 600 words.

 (a) Describe various types of soil microbes and their importance.

Or

- (b) Discuss the role of micro organisms in carbon cycle.
- (a) Describe microbial interactions and its different types.

Or

- (b) Explain the importance of
 - (i) Rhizosphere
 - (ii) Phyllosphere effect.

Page 5 Code No.: 30418 E

(a) Briefly explain about biological nitrogen fixation.

Or

- (b) Give short notes on the following:
 - (i) Nitrification
 - (ii) Denitrification
 - (iii) nif genes
 - (iv) Heterocyst
 - (v) Frankia.
- (a) Discuss briefly the production of Rhizobium inoculants and their field applications.

Or

- (b) Elaborate the morphology, isolation, mass production of VAM fungi. Add note on their applications and importance.
- 20. (a) Give an account on white rust of crucifers.

Or

(b) Describe the symptoms, disease cycle and description of late blight of potato.

Page 6 Code No.: 30418 E